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ABSTRACT

This report presents a description and evaluation of the Nature-Computer Camp (NCC), an environmental and computer science program designed for sixth grade students in the District of Columbia public schools. Inputs, processes and outcomes based on a Planning, Monitoring and Implementing (PMI) Evaluation Model are reviewed for each of the four program objectives. These achieved objectives included: (1) the establishment of the Nature-Computer Camp; (2) significant gains in knowledge in the areas of stream ecology, woodland ecology and geology, and computer literacy; (3) positive attitudes toward the program; and (4) demonstration of appropriate socialization skills. Evaluative results indicated that the goal of the project to provide students with an opportunity to develop socio-academic skills emphasizing environmental inter-dependencies and computer literacy was met. With over 450 students demonstrating gains in all areas, no changes were recommended for either the program or the evaluation design. The only recommendation suggested would be for continuance as is or expansion if possible. Supporting documentation (including evaluation model schema, data analysis summaries, camp schedules, and samples of expected social behaviors) is included in appendices. (ML)

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PUBLIC SCHOOLS OF THE DISTRICT OF COLUMBIA

THE NATURE-COMPUTER CAMP

Final Report

1984-1985

Prepared by
Division of Quality Assurance

1984-1985

THE NATURE-COMPUTER CAMP

Dorothy Elaine Barton, Project Coordinator

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Summary of Findings

Title

The Nature-Computer Camp

Project Directors

Dorothy Elaine Barton, Project Coordinator
Wendell Boyd, Camp Manager
Mary Harbeck, Supervising Director of Science

Project Location

Camp Round Meadow, Thurmont, Maryland

Target Population

Sixth grade students from the District of Columbia Public Schools

Background

Beginning in 1971, the DCPS, the National Park Service and in 1973, the U.S. Office of Education have co-sponsored the Round Meadow Environmental Laboratory School in which students from the fifth grade (in 1971) and thereafter, sixth grade (1972-1984) were provided an opportunity to reinforce their knowledge and skills on environmental science. Since 1983, a new addition to the curriculum was a computer science component, hence the new title of the program, Nature-Computer Camp.

Stated Objectives

A: By July, 1984, a Nature-Computer Camp combining science and computer skills for the District of Columbia Public School sixth graders, will be established at Camp Round Meadow, Thurmont, MD.

B: At the completion of the week in the Nature-Computer Camp program, participants will demonstrate a significant gain in knowledge in the areas of stream ecology, woodland ecology and geology, and in knowledge about computers.

C: At the completion of the week in the Nature-Computer Camp Program, at least 80% of all participants will show maintenance or an increase of a positive attitude toward the program.

D: Using a set of social expectations established by the staff and student campers, campers will demonstrate appropriate socialization.

Evaluation

The evaluation follows the Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision-Making which was developed by the Division of Quality Assurance, District of Columbia Public Schools.

Findings

1. Six 5-day sessions of the Nature-Computer Summer Camp were held at Round Meadow serving a total of 480 students, an average of 80 per session.

2. The staff received training before the first session and 97% of those attending, rated the training in a highly positive way on five criteria.

3. Results of science test scores analyzed on 458 pre- and posttests showed a significant increase in knowledge acquired, at the .001 level.

4. Results of computer test scores analyzed on 458 pre and posttests showed a significant increace in knowledge acquired, at the .001 level.

5. Results of pre- and posttest attitude scale scores on 458 students showed that students came to the camp with a good attitude toward the program and left with an even better one.

6. Post assessment scores on counselor checklists on 458 participants showed a mean score approximately equivalent to acquisition of 85% of the socialization skills.

7. Post assessment scores on teacher checklists on 458 participants showed a mean score approximately equivalent to mastery of 95% of the designated computer and science skills.

BACKGROUND AND PROJECT DESCRIPTION

Introduction

Purpose - The purpose of the Nature-Computer Camp (NCC) was to provide selected 6th grade District of Columbia Public Schools (DCPS) students with the opportunity to reinforce their knowledge of environmental science and to acquire skills in computers.

Need - Economically disadvantaged students who are residents of large urban areas generally have limited experiences or direct contact with the natural environment. The NCC program was designed to reduce geographical isolation of urban youngsters and to provide them with the opportunity to live and learn through first-hand contact with nature and thereby develop an appreciation of their environment and an awareness of environmental problems. In line with the objectives of the school system in regard to computer literacy, the program also sought to develop skills in this area. It also provided students with the opportunity to meet DCPS students from other schools and to improve their social and interpersonal skills.

History - The NCC traces its origin to the Round Meadow Outdoor Environmental Laboratory School. From 1971 the program has operated at Camp Round Meadow with support from a variety of groups including the National Park Service, ESEA Title I. The Emergency School Aid Act and the DCPS Science Department. ECIA Chapter 2 has funded the project since 1983. The program has focused on environmental science with an emphasis on woodland ecology, stream ecology, and geology. Emphasis was placed on content as well as process. While these components of the curriculum were retained, a component on computer literacy has been added to the program for the last two years thereby giving it a two-fold focus on science and technology. In so doing, the program sought to meet the objectives of the DCPS on computer literacy as well as the national acclaim for increasing minority participation and interest in science and technology.

Description of the Project

The NCC was an environmental and computer science program designed for sixth grade students in the D.C. Public Schools. The program was implemented at Camp Round Meadow, in the Catoctin Mountains in Maryland. The program components were as follows:

Planning: The management/administrative staff, made up of the Project Manager, Project Coordinator, and Camp Manager performed the following functions: disseminated information about the camp; determined enrollment procedures and provided registration and physical evaluation forms to principals as requested; reviewed and revised or updated all instructional/curriculum materials previously used at the camp; developed the schedule for the six one-week sessions, scheduled selected participants and notified them

of dates of attendance; determined needed materials and supplies and ordered materials as needed, or borrowed them as in the case of computers; approved or sought approval of cooperative agreement in lease with the U.S. National Park Service for use of the camp facilities, and food service contract with vendors; arranged for bus service for transportation to and from the camp as well as within the camp; and approved the design for the evaluation of the program.

Staff Selection and Development: The instructional staff was made up of six teachers and nine aides. The teacher had qualifications in the speciality areas of the program. The aides were D.C. Public School Aides and undergraduate students who have had experience working with children. One of the aides was a special education aide. Aides performed counseling duties and monitored student social adjustment. Teachers and aides attended a three-day workshop prior to the opening of camp. The workshop was conducted by the administrative staff.

Scheduling: The program was scheduled to operate for six weeks during the summer, from July through August. There were six sessions, each one lasting for one week.

Record Keeping: Project staff kept records of activities.

Materials and Supplies: Besides the materials needed for the study at environmental science such as measurement instruments, the program used twenty computers which were borrowed from the Junior High School Science Computer Program.

Academic Curriculum: The environmental science curriculum was focused on woodland ecology, stream ecology and geology. There was focus both on content as well as on the processes of scientific inquiry to include the application of measurement principles in data collection, problem solving techniques during investigation, organizing, classifying, recording and interpreting data and making abstractions, inferences and conclusions. In the computer science curriculum students received information on the history of computers, learned to write a simple program, identified the hardware components that make up a computer, participated in discussions involving the impact of computers on society, computer-related careers and the effect of computers on careers.

Recreational Curriculum: Students selected extra-curricular activities in their areas of interest.

Socio-emotional Curriculum: In "rap sessions", counselors held discussions with students on expected social behaviors and interpersonal relations. Personal problems were also discussed with the objective of increasing socio-economic maturity, adjustment, social skills, and the development of a positive attitude toward the program. The development of the latter was also promoted by teachers as they sought to present their materials in a varied and interesting fashion and to establish an amicable relationship with the students.

Instruction: The focus of instruction in environmental science was on the reinforcement of the knowledge acquired in the sixth grade and on actual hands-on experiences. The major part of the instruction occured on the trails. In the computer sessions, lectures and hands-on experiences prevailed. The computer sessions were held indoors. Instruction was individualized according to student level and pace of learning.

Students: The majority of the students were sixth grade students who completed the sixth grade curriculum, who received parental consent to participate and who had health insurance coverage. There was an allotment for a limited number of special education students (less than ten per week).

Testing: Assessment was conducted of (1) the staff perceptions of the usefulness and effectiveness of the staff development sessions; (2) student academic gains in environmental science and computers using the NCC Knowledge Test; (3) teacher evaluation of student mastery of objectives using the Teacher Checklist; (4) student change in attitude using the NCC Attitude Scale and (5) student gains in social-interpersonal skills using the Counselor Checklist. Pre- and posttesting were applied in assessing student academic gains and attitude change.

EXTERNAL EVALUATION DESIGN - PLANNING, MONITORING AND IMPLEMENTING (PMI) EVALUATION MODEL FOR DECISION-MAKING

The evaluation follows the Planning, Monitoring, and Implementing (PMI) Evaluation Model for Decision-Making which was developed by the Division of Quality Assurance, District of Columbia Public Schools. (See Appendix A.) The evaluation design which was developed at the beginning of the project year, consisted of the intended inputs, processes and outcomes on specially designed status report forms. The interim report distributed at the mid-point of the project cycle related, on the status report forms, agreements or discrepancies between intended and observed inputs and processes. This final report includes the interim report data brought up to date, plus the agreements and discrepancies between intended and observed outcomes for each objective. Supporting data are included in the appendix. Preceding the PMI status report forms is the results section which summarizes the agreements and discrepancies for each objective and states a general conclusion.

EVALUATION RESULTS - NARRATIVE SUMMARY

The results of the evaluation are presented in this section. Following the narrative are the inputs, processes and outcomes on which this summary is based presented in the PMI reporting format. Supporting data are in the appendix.

Objective A: By July, 1984, a Nature-Computer Camp combining science and computer skills for the District of Columbia Public School sixth graders, will be established at Camp Round Meadow, Thurmont, MD.

There was agreement between all of the intended and observed inputs. Personnel inputs included the project manager, assistant project manager, project coordinator, camp manager, elementary school contact persons, six teachers, nine aides, pre-enrollment allotments for 80 regular students and 10 special education students per week. Schedules were available for six one-week sessions. Planning supplies and materials were adequate. Forms on file included those for registration, physical evaluation, and staff development evaluation. Camp area and facilities were observed to be adequate.

There were no discrepancies in the processes for Objective A. The project manager took care of the pre-camp business activities. The project manager and project coordinator reviewed and updated curricular activities. Principals and parents were notified of the program and eligible students identified. Preparations for attending camp were completed. A three-day staff development workshop was held. Camp activities began with participants following daily schedules. Project staff supervised, taught the students, and conducted student assessments.

Agreement existed between the intended and observed outcomes. Records showed that the general administrative duties and planning necessary for establishing the Summer Science camp were accomplished. Analysis of responses of staff members on a questionnaire evaluating staff development showed a range of 94% to 100% on the five criteria measured.

Objective B: At the completion of the week in the Nature-Computer Camp program, participants will demonstrate a significant gain in knowledge in the areas of stream ecology, woodland ecology and geology, and in knowledge about computers.

All of the observed and intended inputs were in agreement. Curricula for the four content areas were provided, a knowledge test devised and twenty computers on hand. Materials and supplies were adequate, bus transportation available and three trails were available for use.

There was agreement between both the intended and observed processes. Students were observed participating in classroom activities designed to help them acquire computer literacy. Students took the Nature-Computer Camp Knowledge Test on their first and last days at the camp.

Both of the intended and observed outcomes were in agreement. Results on 458 cases for which both pre- and posttest science and computer scores were available, showed significant increases in both areas.

Objective C: At the completion of the week in the Nature-Computer Camp Program, at least 80% of the participants will show maintenance or an increase of a positive attitude toward the program.

The additional inputs for Objective C all showed the status of agreement between the observed and intended items. These included the pre- posttest attitude scale, adequate camp supplies and adequate camp facilities. The six observed processes also showed agreement with their corresponding intended processes. The attitude pretests and posttests were administered as planned; students had opportunities for a wide variety of activities with different staff members; students were taught at their own level and pace; subject matter was presented in an enjoyable way using games and opportunities for hands-on experience; and other extracurricular recreation activities were also provided.

Results of the pre- and posttest attitude scale scores on 458 students showed that students came to camp with a good attitude and left with an even better one. The intended outcome was that 80% of the students would show maintenance of or an increase of a positive attitude toward the program. More than 80% reached the criteria thus producing a status of agreement for the Objective C outcome, thus showing attainment of Objective C.

Objective D: Using a set of social expectations established by the staff and student campers, campers will demonstrate appropriate socialization.

Objective D observed inputs all were in agreement with the intended items. Additional inputs included a written statement of a definition of well socialized individual and list of expected behaviors; a counselor checklist; as well as adequate camp supplies, materials and facilities. All processes also showed agreement between observed and intended items. Students were given information on socialization and expected behaviors; they were involved in cooperative camp activities; they attended counselor led social/interpersonal skills "rap-shops"; and the counselors completed individual student socialization checklists for all participants.

The outcomes showed that positive socialization did occur. Checklists completed by the counselors on 458 participants showed the mean score to be equivalent to 85% on a 100% scale. The checklist included such items as "follows camp rules and regulations" and "maintains a good relationship with other campers". A teacher checklist was also completed for each student with the emphasis more on subject matter skills. On these checklists students showed excellent achievement, averaging 95% mastery of the skills in the areas of computers, woodland ecology, stream ecology and geology. With the successful outcomes, Objective D was reached.

Conclusion

All of the observed inputs, processes and outcomes for the four objectives were in agreement with the intended inputs, processes and outcomes. Objective A, that a Nature-Computer Camp combining science and computer skills would be established as designated, was verified. Gains were shown in knowledge in the areas of stream ecology, woodland ecology and geology and in knowledge about computers as stated in Objective B. Students showed an increase of previously high attitude toward the program as proposed in Objective C. Campers demonstrated appropriate socialization as stated in Objective D. They also were rated highly by their teachers on acquisition of skills.

With all objectives met, the goal of this project, to hold a camp providing students with the opportunity to develop socio-academic skills emphasizing environmental inter-dependencies and computer literacy was met. With over 450 students demonstrating gains in all areas, no changes are recommended for either the program or the evaluation design. The only recommendation would be continuance as is or expansion if possible.

Decisions

This report will be forwarded to the Project Director, Project Manager, LEA Chapter 2 Director, the Superintendent and the School Board to aid them in their decision-making concerning this project.

PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

Goal: The Nature-Computer (Summer Science) Camp program will provide the opportunity for the student camper to develop socio-academic skills emphasizing environmental inter-dependencies and computer literacy.

Objective A: By July, 1984, a Nature-Computer Camp combining science and computer skills for District of Columbia Public School sixth graders, will be established at Camp Round Meadow, Thurmont, MD.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
a. Project manager	Agreement	a. The Chapter 2 Directory lists the project manager.
b. Project coordinator	Agreement	b. The evaluation team met with the project coordinator.
c. Camp manager	Agreement	c. A meeting was held with the camp manager.
d. Elementary school contact persons	Agreement	d. The camp manager verified that a contact person is in each participating elementary school.
e. Six summer camp staff members (teachers)	Agreement	e. There are six teachers. The team met four of the teachers and observed them teaching.
f. Nine aides	Agreement	f. The camp manager verified that there are nine aides. The team met and talked to several of them.
g. Pre-enrollment of 80 regular students per week	Agreement	g. The camp manager verified that there was a pre-enrollment of 80 regular students per week.

OBJECTIVE A

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
i. Pre-enrollment allotment of 10 special education students per week	Agreement	i. A letter was observed designating the allotment.
j. Schedule for six one-week sessions	Agreement	j. A schedule was observed by the evaluation team.
k. Adequate planning supplies and materials	Agreement	k. The evaluation team observed supplies and materials. The project coordinator verified that supplies and materials were adequate.
l. Registration forms	Agreement	l. A sample registration form is on file in the Evaluation Unit Office.
m. Physical evaluation forms	Agreement	m. The Evaluation Unit observed a sample physical evaluation form and filed it in the Evaluation Unit Office.
n. Staff development evaluation instrument	Agreement	n. Staff development evaluation instruments were observed by the team.
o. Adequate camp area and facilities	Agreement	o. Adequate camp area and facilities were observed by the team.

OBJECTIVE A

PART II

PROCESSES†

INTENDED	STATUS	OBSERVED
1.1 Project manager will obtain approval of the cooperative agreement and lease with U.S. National Park Service for use of facilities.	Agreement	1.1 A copy of the agreement and lease with U.S. National Park Service for use of facilities was observed by the Evaluation Unit.
1.2 Project manager will approve food service contract with a vendor.	Agreement	1.2 It was verified by the project coordinator that the project manager approved food service contract with a vendor.
1.3 Project coordinator and camp director will review material previously used at Camp Round Meadow.	Agreement	1.3 Project coordinator and camp director verified that they reviewed material previously used at Camp Round Meadow.
1.4 Project coordinator and staff will update curricular material.	Agreement	1.4 It was verified that the project coordinator and staff updated curricular materials. Team examined some of the materials.
1.5 Project coordinator and ECIA Chapter 2 Evaluation Unit personnel will update evaluation instruments.	Agreement	1.5 Project coordinator and ECIA Chapter 2 Evaluation Unit personnel updated evaluation instruments.
1.6 Project coordinator and camp manager will notify principals and parents about the program.	Agreement	1.6 Letters in which the project coordinator and camp manager notify principals and parents about the program are on file in the Evaluation Unit Office.
1.7 Principal and contact persons will identify eligible students.	Agreement	1.7 The form for principals and contact persons to identify eligible students is on file in the Evaluation Unit Office.

† Processes are numbered to correspond with outcomes

OBJECTIVE A

PART II (continued)

PROCESSES†

INTENDED		STATUS	OBSERVED	
1.8	Project coordinator and staff will prepare and distribute registration forms and physical evaluation forms.	Agreement	1.8	Project coordinator and staff prepared and distributed registration forms and physical evaluation forms as evidenced by completed forms.
1.9	Project coordinator will schedule participants and notify them of dates of attendance.	Agreement	1.9	The project coordinator scheduled participants and notified them of dates of attendance as evidenced by forms and correspondence on file.
1.10	Project coordinator and staff will visit the camp site in advance of the program to assure readiness for the program.	Agreement	1.10	The project coordinator verified that she and the staff visited the camp site in advance of the program to assure readiness for the program. The staff visited 3 days.
1.11	Project coordinator and staff will arrange transportation for participants.	Agreement	1.11	Project coordinator and staff arranged transportation for participants. In camp transportation of participants was observed by the team.
1.12	Camp manager will order camp supplies and materials.	Agreement	1.12	The camp manager verified that he ordered camp supplies and materials.
2.1	Project manager, project coordinator and camp manager will conduct a three-day staff development workshop.	Agreement	2.1	Project manager, project coordinator and camp manager conducted a three-day staff development workshop on June 27, 28, and 29 as evidenced by agenda and evaluation questionnaires.

† Processes are numbered to correspond with outcomes

OBJECTIVE A

PART II (continued)

PROCESSES†

INTENDED		STATUS	OBSERVED	
2.2	Project coordinator will monitor the workshop evaluation.	Agreement	2.2	Project coordinator monitored the workshop evaluation as evidenced by completed forms.
3.1	Project staff will keep records of attendance.	Agreement	3.1	The camp manager reported, and examination of records showed that the project staff has been keeping records of attendance.
3.2	Project staff will keep records of activities.	Agreement	3.2	The camp manager reported that the project staff keeps records of activities as observed by evaluators.
3.3	Participants will follow the daily schedules.	Agreement	3.3	Participants follow the daily schedule. This was observed during the visit by the evaluation team.
3.4	Project staff will supervise and teach the students.	Agreement	3.4	Four project staff members were observed: one teaching woodland ecology, one teaching stream ecology, and two teaching computer skills.
3.5	Project staff will conduct student assessments.	Agreement	3.5	The camp manager verified that the project staff conducted student assessments. The evaluation unit has copies of student assessment materials.

† Processes are numbered to correspond with outcomes

OBJECTIVE A

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Records submitted by the project coordinator to the ECIA Chapter 2 Evaluation Unit by August 31, 1984, will show that the general administrative duties and planning necessary for establishing the Nature-Computer Summer Camp have been accomplished.	Agreement	1. Records showed that the general administrative duties and planning necessary for establishing the Nature-Computer Summer Camp were accomplished. (See Appendix C.)
2. Evaluation of the staff development session submitted by the project coordinator to the ECIA Chapter 2 Evaluation Unit by August, 1984 will show that 90% of the teachers rated the training as good or better on selected criteria.	Agreement	2. The session was rated on five criteria. Analysis of staff ratings of the sessions showed that 97% of the teachers rated the training in a highly positive way on the five selected criteria; 94% rated the presentation as exciting, 100% rated the training as very clear; 100% rated the training as very useful; 94% indicated that the session greatly evoked or increased interest in the Nature-Computer Program; 100% indicated that the workshop objectives were met. (See Appendix D.)
3. Records submitted by the project coordinator to the ECIA Chapter 2 Evaluation Unit by August 31, 1984, will show that the Summer Science Camp was in operation for six 5-day sessions.	Appendix	3. Records of the schedule for the six 5 day sessions of the number of students who registered for each session and of the test data from the pre- and posttests administered in each of the six sessions showed that the Summer Science Camp was in operation for six 5 day sessions. There were 960 answer sheets submitted indicating 480 students attended, an average of 80 per session.

PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

Goal: The Nature-Computer (Summer Science) Camp program will provide the opportunity for the student camper to develop socio-academic skills emphasizing environmental inter-dependencies and computer literacy.

Objective B: At the completion of the week in the Nature-Computer Camp Program participants will demonstrate a significant gain in knowledge in the areas of stream ecology, woodland ecology and geology and in knowledge about computers.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
Inputs a through i are the same as in Objective A. Please see page 1.		
j. Curricula for four content areas	Agreement	j. Curricula for the four content areas have been provided. Curricula were observed by the evaluation team.
k. Program-designed test to measure knowledge of computers and of three areas of science.	Agreement	k. Program-designed test to measure knowledge of computers and of three areas of science has been devised and is on file in the Evaluation Unit Office.
l. 20 computers	Agreement	l. Twenty computers are available for use. Computers were observed by the evaluation team.
m. Adequate materials and supplies	Agreement	m. The camp manager verified that materials and supplies are adequate. They were observed by the evaluation team.

OBJECTIVE B

PART I (continued)

INPUTS

INTENDED	STATUS	OBSERVED
n. In-camp bus transportation	Agreement	n. The camp manager verified that in-camp bus transportation is available. It was observed by the team.
o. Three trails - Wolf Rock Trail, Hog Rock Trail and Owen's Creek Trail.	Agreement	o. Three trails were available. The evaluation team observed participants on two of the trails.

OBJECTIVE B

PART II

PROCESSES†

INTENDED	STATUS	OBSERVED
1.1 Under the instruction or supervision and guidance of staff members, students will apply the following processes in each of the science components of the program:	Agreement	1.1 The evaluation team observed students studying the woodland ecology and stream ecology curriculum. Under the instruction and guidance of staff members, students were observed applying the following processes:
- applying measuring skills and problem solving techniques during investigations;		- applying measuring skills and problem solving techniques during investigations such as determining the depth of a stream;
- locate, organize, classify, record and interpret data;		- locating, organizing, classifying, recording, and interpreting data such as types of trees;
- make abstractions and inferences;		- making abstractions and inferences such as from a fallen log;
- make observations, measure and collect data during the hikes.		- making observations, measuring and collecting data during the hikes, such as materials from a stream.

† Processes are number to correspond with outcomes

OBJECTIVE B

PART II (continued)

PROCESSES†

INTENDED	STATUS	OBSERVED
2.1 To help them acquire computer literacy, students will participate in classroom activities such as follows: - writing a simple program that works (using Atari graphics); - identifying the hardware components that make up a computer; - participating in discussions involving the impact computers have, are having, and will have on society; - discussing computer related careers and how computers will affect each type of career; - receiving information on history of computers and devices.	Agreement	2.1 Students were observed participating in classroom activities designed to help them acquire computer literacy. The students were observed writing a program using Atari graphics. A poster in the classroom identified the hardware components that make up a computer. Student reports were observed on the impact computers have, are having, and will have on society. Pamphlets were available which discussed computer-related careers.
2.2 Students will take the NCC Knowledge Test.	Agreement	2.2 The camp manager verified that the students took the NCC Knowledge Test on their first and last days at the camp. The completed tests are on file in the Unit office.

† Processes are number to correspond with outcomes

OBJECTIVE B

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Analysis of the pre- and posttest scores on the program-designed science test submitted to the ECIA Chapter 2 Evaluation Unit by the project coordinator by August 31, 1984 will show a significant increase in the ability to: - classify aquatic organisms, indicate life cycles of various organisms and infer independent relationships in a stream environment; - indicate interdependent relationships existing in a forest community and classify the organisms therein as producers, consumers or decomposers; - identify rocks, minerals and soil, classify examples of each group and identify evidence of erosion and weathering.	Agreement	1. Results of scores of science tests analyzed on 458 cases (all students for whom both pre- and posttests were available) showed a significant increase at the <.001 level in all areas. (See Appendix E.)
2. Analysis of the pre- and posttest scores on the program-designed computer test submitted to the ECIA Chapter 2 Evaluation Unit by the project coordinator by August 31, 1984 will show a significant increase in knowledge about computers.	Agreement	2. Results of scores of computer tests analyzed on 458 cases for which both pre- and posttests were available showed a significant increase at the <.001 level in knowledge about computers. (See Appendix E.)

PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

Goal: The Nature-Computer (Summer Science) Camp program will provide the opportunity for the student camper to develop socio-academic skills emphasizing environmental inter-dependencies and computer literacy.

Objective C: At the completion of the week in the Nature-Computer Camp Program, at least 80% of all participants will show maintenance or an increase of a positive attitude toward the program.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
Inputs a through i are the same as in Objective A. Please see page 1.		
j. Pre-posttest attitude instrument	Agreement	j. The pre-posttest attitude instrument is available. The Evaluation Unit has a copy.
k. Adequate camp supplies and materials	Agreement	k. The camp manager verified that adequate camp supplies and materials are available. They were observed by the evaluation team.
l. Adequate camp area and facilities	Agreement	l. Adequate camp area and facilities were observed by the evaluation team.

OBJECTIVE C

PART II

PROCESSES†

INTENDED	STATUS	OBSERVED
1.1 Attitude pretests will be administered at camp on Mondays.	Agreemnt	1.1 The camp manager verified that attitude pretests are administered at camp on Mondays. One completed set was examined by the team.
1.2 Students will have opportunities for a wide variety of science and computer experiences with several different staff members.	Agreement	1.2 Cpportunities were observed for a wide variety of science and computer experiences with several different staff members. This included computer and art instructors, as well as those for geology, woodland ecology, and stream ecology projects.
1.3 Students will be taught at their own level and pace.	Agreement	1.3 Students were observed being taught at their own level and pace.
1.4 Camp teachers will present subject matter in a enjoyable way using activities such as "Nature Bingo" and computer games.	Agreement	1.4 The camp manager verified that camp teachers used games such as Nature-Computer Hangman. Students were observed enjoying hands-on experience that allowed them to interact with their environment.
1.5 Students will be involved in extracurricular recreation activities.	Agreement	1.5 The camp manager listed the extracurricular recreation activities which included volleyball, badminton, tennis, arts and crafts, campfire, and scavenger hunt. Students selected the activities in which they were interested, but if their choices were too narrow they were counseled into trying more things.
1.6 Attitude posttests will be administered at camp on Friday.	Agreement	1.6 The camp manager verified that attitude posttest are administered at camp on Fridays. One complete set was examined by the team.

† Processes are number to correspond with outcomes

OBJECTIVE C

PART III

OUTCOMES

INTENDED	STATUS	OBSERVED
1. Pre- and post-assessment scores submitted by the project coordinator to the Chapter 2 Evaluation Unit by August 31, 1984 will show that 80% of the students attending camp for a week, will show maintenance or an increase of a positive attitude toward the program.	Agreement	1. Results of pre- and posttest attitude scale scores analyzed on 458 students showed that students came to the camp with a good attitude and left with an even better one. The analysis summarized in Appendix F, following a copy of the Attitude Scale, verified that more than 80% of the students showed maintenance or an increase of a positive attitude toward the program.

PLANNING, MONITORING, AND IMPLEMENTING (PMI)
EVALUATION MODEL FOR DECISION-MAKING

Reporting Form

Goal: The Nature-Computer (Summer Science) Camp program will provide the opportunity for the student camper to develop socio-academic skills emphasizing environmental inter-dependencies and computer literacy.

Objective D: Using a set of social expectations established by the staff and student campers, campers will demonstrate appropriate socialization.

PART I

INPUTS

INTENDED	STATUS	OBSERVED
Inputs a through i are the same as in Objective A. Please see page 1.		
j. Definition of well socialized individual	Agreement	j. The definition of a well socialized individual is on file in the Evaluation Unit office. It states that the "well socialized individual is one whose behaviors are appropriate to the expectations set by the social groups with which he or she interacts.
k. List of expected behaviors	Agreement	k. The list of expected behaviors is on file in the Evaluation Unit office.
l. Counselor checklist	Agreement	l. The counselor checklist based upon expected behaviors was prepared by the Evaluation Unit with input from project personnel. (See Appendix G).
m. Adequate camp supplies and materials	Agreement	m. The camp manager verified that adequate camp supplies and materials were available. They were observed by the Evaluation Unit.
n. Adequate camp area and facilities	Agreement	n. Adequate camp area and facilities observed by the Evaluation Unit.

OBJECTIVE D

PART II

PROCESSES†

INTENDED	STATUS	OBSERVED
1.1 Students will be given information on the definition on the socialized individual.	Agreement	1.1 The camp manager verified that students were given information on the definition of a well socialized individual and expected behaviors during their first session with the counselors, through group discussions.
1.2 Students will be involved in cooperative activities such as KP duty (cafeteria); dorm clean-up and inspection; camp clean-up and inspection; and a scavenger hunt.	Agreement	1.2 The sheets assigning individual students to cooperative activities, such as KP duty (cafeteria) and dormitory clean-up and inspection, were observed by the Evaluation Unit.
1.3 Counselor will lead social/interpersonal skills "rap-shops."	Agreement	1.3 The camp manager verified that counselors led social/interpersonal skills "rap-shops" periodically.
1.4 Counselors will complete individual student socialization checklists on Fridays.	Agreement	1.4 Counselors completed individual student socialization checklists on Fridays as evidenced by completed forms submitted to the Unit.

† Processes are numbered to correspond with outcomes

OBJECTIVE D

PART II

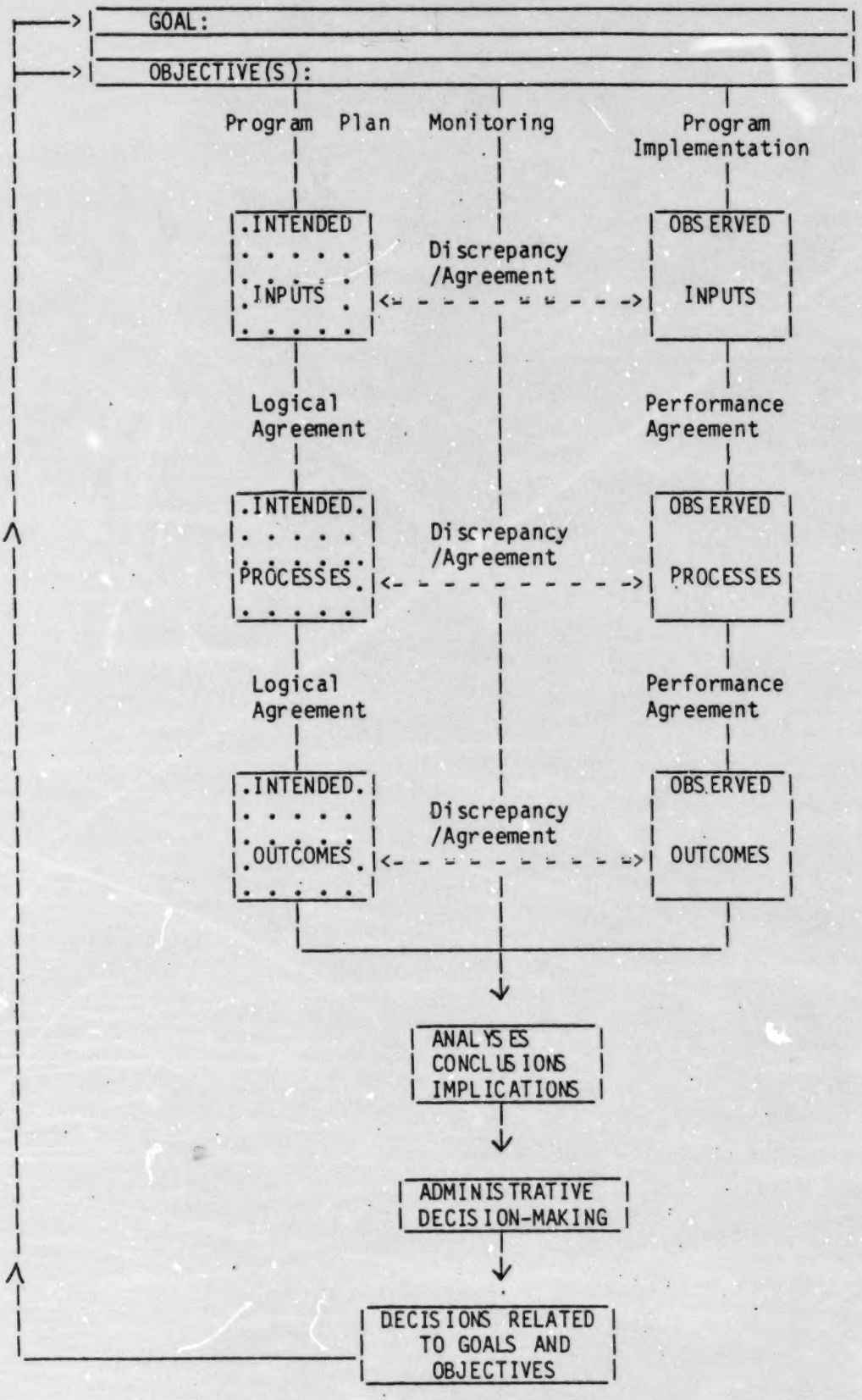
OUTCOMES

INTENDED	STATUS	OBSERVED
1. Post-assessment scores on the counselor checklists on socialization, submitted by the project coordinator to the Chapter 2 Evaluation Unit by August 31, 1984 will show that the mean score of students attending camp for a week, will be 70% or better.	Agreement	1. Checklists were completed by both counselors and teachers on 458 participants. As may be seen in Appendix G, the counselors rated the students on their socialization while the teachers rated their skills. Following the copies of the two checklists in Appendix G are summaries of the analyses. On the counselor checklist the mear student rating was 1.44. With 1 on the checklist scale equivalent to 100% and 4 to 0, the mean of 1.44 would be approximately equivalent to an acquisition of 85% of the socialization skills. On the teacher checklist, the mean total student score was 23.73. On a scale where 100% is equivalent to a score of 25, the mean score for the group would be approximately equivalent to 95% mastery of the designated computer and science skills.

APPENDIX A

EVALUATION MODEL SCHEMA

EVALUATION MODEL SCHEMA



APPENDIX B

CORRESPONDENCE, FORMS AND SCHEDULES
FOR PLANNING AND IMPLEMENTING
THE NATURE-COMPUTER CAMP

Office of Instruction **Instructional Services Center**

Langdon Elementary School
20th and Franklin Streets, N.E. Washington, D.C. 20018

April 5, 1984

Dear Administrator:

The District of Columbia Public Schools in cooperation with the National Park Service is again conducting a special summer program (Nature Computer Camp) at Camp Round Meadow in the Catoctin Mountain Park, Thurmont, Maryland.

In October of this school year, the Department of Science extended an invitation to your sixth graders to participate in a spring session of the Nature Computer Camp. Unfortunately, we were not able to get that session into operation. However, we are now making plans for the summer program that will run from July 9 - August 17, 1984.

More than 100 schools registered an intent to participate in the spring session. We are hoping that these same schools will select and prepare at least ten (10) eligible students for the summer program. Five alternates may be named in addition to the official nominations. Eligible students are sixth graders that will be promoted to the seventh grade. Each participant must have proof of a recent physical evaluation and health insurance. The participant will spend one week (Monday - Friday) at the camp where hands-on experiences will be provided in both computer literacy and envirmental studies.

Enclosed are student registration forms and a summary sheet. Please use the Multipurpose Physical Evaluation Form, already in your school, for proof of physical examination. Be sure that all physical evaluation forms have been signed by a physician or the school pediatric nurse and insurance information (company and policy number) is properly recorded.

It would be greatly appreciated if a contact person, designated by you, would identify potential participants, distribute and collect registration information, summarize the information on the summary sheet and summit all forms to this office by May 9, 1984.

Thank you for your cooperation in offering this opportunity to the sixth grade students in your building.

Sincerely yours,

Dorothy E. Barton, Coordinator
Dorothy E Barton
Wendell Boyd, Camp Manager
Wendell Boyd

DEB:WB:bjh

Office of Instruction **Instructional Services Center**

Langdon Elementary School
20th and Franklin Streets, N.E. Washington, D.C. 20018

April 5, 1984

Dear Parent/Guardian:

The District of Columbia Public Schools Nature Computer Camp will operate this summer from July 9 to August 17, 1984. The National Park Service will again provide the facility, Camp Round Meadow, in the Catoctin Mountain Park at Thurmont, Maryland.

Last summer's program was most successful and we are looking forward to an even more exciting experience this year. We are indeed happy to offer your child this invaluable opportunity to engage in hands-on activities with computers and the natural environment in a camp setting at no cost to you.

Students now completing the sixth grade are eligible to participate provided they have proof of a recent physical examination and current health insurance protection. Many students will be able to use a copy of the school examination form completed for the current school year. Others may obtain a statement from the family doctor or a local health clinic which certifies that the student's health is sufficiently good to participate in a camping program.

A competent staff of resident teachers, counselors and a camp director will provide instruction and supervision for student campers during their one week stay at the camp-site.

If you would like your child to participate in the Nature Computer Camp program this summer, please complete the registration and consent form and return it to your child's school immediately. Eligible participants will be scheduled on a first come first served basis. As soon as the schedule for campers is completed, we will send a confirmation letter with the dates that your child will attend.

Thank you for your cooperation.

Yours truly,

Dorothy E. Barton, Coordinator
Dorothy E. Barton
Wendell Boyd, Camp Manager
Wendell J. Boyd

DEB:WB:bjh

ROUND MEADOW NATURE-COMPUTER CAMP

Instructional Services Center
Langdon Elementary School
20th & Evarts Streets, N. E.
Washington, D. C. 20018

ROUND MEADOW NATURE COMPUTER CAMP
CATOCTIN MOUNTAIN PARK THURMONT, MARYLAND

REGISTRATION

NAME: _____ DATE OF BIRTH: _____
(Please Print)

HOME ADDRESS: _____ ZIP CODE: _____ TELEPHONE: _____

SCHOOL _____ TEACHER'S NAME: _____

EMERGENCY CONTACT: (Please Print) _____

DAY PHONE: _____ NIGHT PHONE: _____

HEALTH INSURANCE PROVIDED: COMPANY _____

POLICY NUMBER _____

Parent's or Guardian's Consent:

I hereby request that _____ be permitted to attend Round Meadow Camp at Thurmont, Maryland and participate in all the activities of the Nature Computer Camp Program from _____ to _____. With the understanding that the utmost care will be taken to insure my child's safety and welfare, I authorize the Camp Director to act for me according to his best judgement and ability in any emergency that may arise requiring medical care or otherwise.

I understand that my child must have a physical examination before he/she can attend. If this examination cannot be done by the school physician, I will be prepared to take my child to a neighborhood health clinic or my personal physician.

DATE: _____ _____
Signature of Parent or Guardian

_____ _____
(Please PRINT Parent/Guardian Name on This Line.)

Dorothy E. Barton & Wendell J. Boyd
Project Coordinators

TELEPHONE: 576-6580

Office of Instruction **Instructional Services Center**

Langdon Elementary School
20th and Franklin Streets, N.E. Washington, D.C. 20018

Nature-Computer Camp Confirmation

Dear Parent:

_____ will attend the _____ session of the Nature Computer Camp from Monday, _____ to Friday, _____.

Buses will pick up students at Langdon Elementary School, located at 20th and Franklin Streets, N.E. Students should report to the Evarts Street side of the building. The departure time is 8:30 a.m. on Monday morning and students will return to Langdon around 2:30 p.m. the following Friday. It is mandatory that you or a responsible adult be at Langdon on Friday afternoon to pick up your child when the buses arrive. Please do not advise your child to take a cab home. Cab drivers have been very reluctant to pick up our students in the past. Some of them are not permitted by their companies to transport minor children.

If for any reason your child cannot attend camp on the date listed above, please notify this office promptly so that he/she may be rescheduled or an alternate camper can be selected. Questions or concerns may be directed to Dorothy E. Barton, Instructional Services Center, Langdon School, 576-6580.

We are looking forward to seeing your child at camp.

Dorothy E. Barton, Coordinator
Nature-Computer Camp

DEB:bjh

Office of Instruction **Instructional Services Center**
Langdon Elementary School
20th and Franklin Streets, N.E. Washington, D.C. 20018

June 11, 1984

Memorandum To: Affected Elementary School Principals

From: Dorothy E. Barton, Coordinator DEB
Nature-Computer Camp

Subject: Scheduling Campers

Thank you for responding to our invitation to involve your sixth graders in our Summer Nature-Computer Camp at Camp Round Meadow. Students with completed registration information and proof of a recent physical examination were scheduled in the order received. All spaces for the six weeks were filled by May 30, 1984. Confirmation letters for registered students were sent to contact persons to forward to parents.

Your students were not registered to participate for the following reason:

☐ Completed forms from your school were received after May 30. We have placed these students on a waiting list. If space should become available we will contact the parents of these students directly, so that they may be scheduled.

☐ Registration information for your students was incomplete. If you would like to submit the missing information to this office we will place your students on the waiting list. The parents of these students will be contacted directly, if space becomes available at a later date.

DEB:bjh

Office of Instruction — Instructional Services Center
Langdon Elementary School
20th and Franklin Streets, N.E. Washington, D.C. 20018

May 17, 1984

Memorandum To: Contact Persons

From: Dorothy E. Barton, Coordinator DEB
Nature Computer Camp

Subject: Student Confirmation Letters for Camp

Enclosed are letters confirming the registration of your students in the Nature-Computer Camp at Round Meadow this summer. Please send these home to parents as soon as possible. Further questions and concerns may be directed to Dorothy E. Barton, Instructional Services Center, Langdon School, 576-6580.

DB:bjh

Office of Instruction **Instructional Services Center**

Langdon Elementary School
20th and Franklin Streets, N.E. Washington, D.C. 20018

May 21, 1984

Memorandum To: Nature Computer Camp Staff

From: Dorothy E. Barton

Subject: Staff Development for Nature Computer Camp

It gives me great pleasure to welcome back our former staff members and welcome aboard those who are joining us for the first time. We are looking forward to a very successful and exciting summer at Camp Round Meadow. Thanks to each of you for volunteering your time to participate in the three day staff development workshop that we have planned for you. The workshop will be held at Camp Round Meadow, Thurmont Maryland on Wednesday, Thursday and Friday, June 27-29, 1984. We are requesting that all staff members be present for all activities.

So that everyone will have transportation to and from the camp, we would like to arrange carpools. Please call us here at 576-6580 to let us know if you plan to drive or if you need a ride. We will meet here at Langdon School on Wednesday, June 27 in room 137, Instructional Services Center. We plan to depart at about 8:30 a.m. on Wednesday and will return on Friday afternoon. Please bring casual clothes, personal items including towels and wash cloths, a pillow (if desired) and sheets or a sleeping bag for your bed. A flashlight will also be useful. Again, we appreciate your willingness to participate in this workshop and are looking forward to getting to know you better.

If you have further questions, we can discuss them when you call. Thank you.

DEB:bjh

NATURE - COMPUTER CAMP

SCHEDULE OF EVENTS

ROUND MEADOW
THURMONT, MD.

MONDAY

8:45 - Buses leave D.C.

10:30 - Buses arrive at Round Meadow

10:45 - Orientation - dorm assignments, general rules and regulations
(Outside - in cafeteria if raining)

11:30 - Settling in dorms (Counselors making sleeping assignments)

12:15 - Lunch (Cafeteria Style) all groups

1:00 - 1:55 - Pre-test Teachers (with homeroom groups)
Micro - Chips - (classroom #1)
Trailblazers - (classroom #2)
Backpackers - (rear of cafeteria)
Loopers - (country store)

Counselor's "Rap Shop"

2:00 - 2:55 - "Rap Shop" all groups with counselors

3:00 - 3:55 - Computer Orientation - Loopers (Veronica & Judith)
Arts & Crafts - (classroom #1) - Micro-Chips (Sarah & David)
Trails Orientation - (conference room) - Trailblazers and Backpackers (Thomas, Arleta & Emmanuel)

4:00 - 4:55 - Computer Orientation - Backpackers (Lawrence & Elizabeth)
Arts and Crafts - Trailblazers, (Sarah & Stephen) (classroom #1)
Trails Orientation, movie "Nature's Half Acre" (conference room) Loopers and Micro-Chips (Richard, Brain & Shaun)

5:15 - KP'sto Cafeteria

5:30 - Dinner (family style)

7:00 - 7:55 - Computer orientation - Micro Chips (Veronica & David)
Arts and Crafts - Loopers (classroom #1) (Sarah & Judith)
Recreational Activities - Trailblazers and Backpackers, (Brenda, Stephen, Arleta, Emmanuel & Elizabeth)

8:00 - 8:55 - Computer orientation - Trailblazers (Lawrence & Arleta)
Arts and Crafts - Backpackers (classroom #1) (Sarah & Elizabeth)
Recreational Activities - Loopers and Micro-Chips (Richard, Brian, Shaun, Judith & David)

9:00 - Preparation for bed

TUESDAY

7:00 - Wakeup

7:30 - KP's to cafeteria
Aerobics (All Staff)

7:45 - Breakfast (family style) all groups and staff

8:30 - 8:50 - cleaning dorms - counselors (all groups)

9:00 - 12:00 - Classes (all groups)

Loopers - Stream Ecology (Richard & Judith)
Backpackers - Woodland Ecology (Brenda & Emmanuel)
Trailblazers - Computers (Lawrence & Arleta)
Micro-Chips - Computers (Veronica & David)

12:00 - 12:45 - Lunch (cafeteria style)

12:45 - 1:00 - free time

1:00 - 4:00 - Classes (all groups)
Loopers - Computers (Veronica & Brian)
Backpackers - Computers (Lawrence & Elizabeth)
Trailblazers - Geology (Thomas & Stephen)
Micro-Chips - Woodland Ecology (Brenda & Shaun)

4:15 - 5:10 - Extracurricular Activities (all groups with their counselors)

5:15 - KP's to cafeteria

5:30 - Dinner (family style) (all groups)

6:30 - 7:25 - Nature Scavenger Hunt (all groups)
Trailblazers (Arleta & Stephen)
Backpackers (Elizabeth & Emmanuel)
Loopers (Judith & Brian)
Micro-Chips (Shaun & David)

7:30 - 8:30 - Computer Practice - Loopers and Backpackers Thomas, Judith, & Emmanuel)
Nature Bingo - Micro-Chips and Trailblazers (Lawrence, Shaun, & Stephen)

8:35 - 9:35 - Computer Practice - Micro-Chips and Trailblazers (Richard, David, & Arleta)
Nature Bingo - Loopers & Backpackers (Veronica, Brian & Elizabeth)

9:35 - Preparation for bed

10:15 - Lights Out

WEDNESDAY

7:00 -	Wakeup
7:30 -	KP's to cafeteria Aerobics (all staff)
7:45 -	Breakfast - all groups and staff (family style)
8:30 - 8:50	Cleaing dorms (all groups)
9:00 - 12:00 -	Classes (all groups) Loopers - Computers (Veronica & Judith) Backpackers - Computers (Lawrence & Emmanuel) Trailblazers - Stream Ecology (Richard & Arleta) Micro-Chips - Geology (Thomas & David)
12:00 - 12:45 -	Lunch (cafeteria style)
12:45 - 1:00 -	Free time
1:00 - 4:00 -	Classes (all groups) Loopers - Woodland Ecology (Brenda & Brian) Backpackers - Geology (Thomas & Elizabeth) Trailblazers - Computers (Veronica & Stephen) Micro-Chips - Computers (Lawrence & Shaun)
4:15 - 5:15 -	Extracurricular Activities (all groups with their counselors) (Sarah)
5:15 -	KP's to cafeteria
5:30 -	Dinner (family style) all groups & staff.
6:30 - 7:30 -	Recreational Activities (all groups with their counselors) (Sarah)
7:30 - 8:30 -	Computer Practice - Loopers and Backpackers (Brenda, Elizabeth,& Brian) Extracurricular Activities - Trailblazers and Micro-Chips (with their counselors)
8:35 - 9:35 -	Computer Practice - Trailblazers and Micro-Chips (Richard, David, & Arleta) Extracurricular Activities - Loopers and Backpackers - (with their counselors)
9:35 -	Preparation for bed
10:15 -	Lights out

MICROFILMED FROM BEST AVAILABLE COPY

THURSDAY

7:00 - Wakeup

7:30 - KP's to cafeteria
Aerobics (all groups & staff)

7:45 - Breakfast (family style) all groups & staff

8:30 - 8:50 Cleaning dorms (all groups)

9:00 - 12:00 - Classes (all groups)

Loopers - Geology (Thomas & Judith)
Backpackers - Stream Ecology (Richard & Emmanuel)
Trailblazers - Computers (Veronica & Arleta)
Micro-Chips - Computers (Lawrence & David)

12:00 - 12:45 - Lunch

12:45 - 1:00 - Free time

1:00 - 4:00 - Classes (all groups)
Loopers - Computers (Lawrence & Brian)
Backpackers - Computers (Veronica & Elizabeth)
Trailblazers - Woodland Ecology (Brenda & Stephen)
Micro-Chips - Stream Ecology (Richard & Shaun)

4:15 - 5:15 - Extracurricular Activities (all groups with their counselors)

5:15 - KP's to cafeteria

5:30 - Dinner (family style) all groups & staff

6:30 - 8:30 - Mini-Olympics (all groups & staff)

8:30 - 9:30 - Simulated Campfire (all groups & staff)
9:35 - Preparation for bed
10:15 - Lights out

FRIDAY

7:00 - Wakeup

7:30 - KP's to cafeteria
Aerobics

7:45 - Breakfast - (family style) all groups and staff

9:00 - Post-Tests (all groups) Teachers with homeroom group
Loopers - country store
Micro-Chips - classroom #1
Trailblazers - classroom #2
Backpackers - rear of cafeteria

10:00 -	Camp Shakedown
11:15 -	"Rap Shop" Counselors (with their groups)
12:00 -	Lunch
12:30 -	Board buses for D.C.

ADDENDUM TO SCHEDULE (P.M.)

TUESDAY

4:00 - 4:20 - Cooling off after classes Loopers (LO), Trailblazers (TB), and Backpackers (BP) with their counselors.

4:20 - 5:15 - TB, LO, and BP with their counselors in group areas.

4:30 - 4:45 - Cooling off after classes MicroChips (MC).

4:45 - 5:15 - MC with their counselors in group areas.

WEDNESDAY

4:00 - 4:20 - Cooling off after classes LO, TB, and MC with their counselors.

4:20 - 4:45 - LO, and TB - Basketball court (practice for mini-olympics activities).

4:30 - 4:45 - Cooling off after classes with their counselors (BP).

4:50 - 5:15 - BP, and MC - Basketball court (mini-olympic activities).

4:50 - 5:15 - LO and TB in group areas with their counselors.

THURSDAY

4:00 - 4:20 - Cooling off (all group) with their counselors.

4:20 - 5:15 - Extra Curricular activities (all groups with their counselors in group areas).

*NOTE - (do not use obstacle course and mini-olympic area for any practices).

APPENDIX C

A SAMPLE OF EXPECTED SOCIAL BEHAVIORS

A Sample of Expected Social Behaviors

Objective: Using a set of appropriate social expectations established by the staff and student campers, campers will demonstrate maintenance or improvement in each.

The well socialized individual is one whose behaviors are appropriate to the expectations set by the social groups with which he interacts.

Suggestions for evaluation:

1. If all the campers agree to do something that you do not care to do, you should refuse to help them.

2. Students who do not follow the camp rules and regulations are poor campers.

3. A camp director should not expect you to do tasks (things) which you are not willing to do.

4. It is necessary to respect the rights of others when you are living and working with them.

5. All campers should share the responsibility of keeping the camp facilities and the camp grounds clean.

Activities

1. KP duty (cafeteria)

2. Scavenger hunt

3. Dorm clean-up and inspection

4. Camp clean-up and inspection

5. Interpersonal skills "rap-shop"

Counselor Checklist

1. Respects the rights of others

2. Follows camp rules

3. Participates in trail activities

4. Participates in computer activities

5. Uses equipment with care

6. Interacts with other campers

7. Is curious and investigative

8. Helps to keep dormitory clean

9. Completes asignment on time

Expected Behavior - Students

1. Follow rules and regulations of the camp

2. Respect the rights of others

3. Share in keeping camp facilities and grounds clean

4. Participate in all camp activites

5. Report to camp activities on time

6. Refrain from use of profanity/abusive language

7. Practice safety rules on trails and at campsite

8. Expect to be supervised at all times

9. Remain within the boundaries of the camp from time of arrival to departure

10. Stay away from unsupervised areas.

Students will participate in classroom activities designed to help acquire computer literacy by:

1. Writing a simple program that works (using Atari graphics).

2. Identifying the hardware components that make up a computer.

3. Participating in discussions involving the impact computers have, are having, and will have on society.

4. Becoming familiar with computer related careers and how computers will affect each type of career.

5. Knowing a history of computers and computing devices.

APPENDIX D

RESULTS OF NATURE-COMPUTER CAMP STAFF
DEVELOPMENT WORKSHOP QUESTIONNAIRES, 1984

RESULTS OF NATURE-COMPUTER CAMP STAFF DEVELOPMENT WORKSHOP QUESTIONNAIRES, 11/19/84

Summary of Ratings Completed
1984 Number of Respondents = 16

Item	Excellent (5)		Good (4)		Average (3)		Fair (2)		Poor (1)		No Response		Total		Mean
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	
Manner	10	62.5	5	31.3	1	6.3	0	0.0	0	0.0	0	0.0	16	100	4.56
Clarity	13	81.3	3	18.8	0	0.0	0	0.0	0	0.0	0	0.0	16	100	4.81
Value	14	87.5	2	12.5	0	0.0	0	0.0	0	0.0	0	0.0	16	100	4.88
Interest	11	68.8	4	25.0	1	6.3	0	0.0	0	0.0	0	0.0	16	100	4.63
Objectives Met	13	81.3	3	18.8	0	0.0	0	0.0	0	0.0	0	0.0	16	100	4.81
AVERAGE PERCENT		76.2		21.2		2.5		0.0		0.0		0.0		100	

APPENDIX E

RESULTS OF STUDENTS' PRE- AND POSTTEST SCORES
ON THE SCIENCE AND COMPUTER TESTS OF THE
NATURE-COMPUTER CAMP PROGRAM

RESULTS OF STUDENTS' PRE- AND POSTTEST SCORES ON
THE SCIENCE AND COMPUTER TESTS OF THE
NATURE-COMPUTER CAMP PROGRAM

N=458

	Number of Cases	Mean	Standard Deviation	T Value	Level of Significance
Science Pretest	458	7.1332	2.315	-28.74	0.000
Science Posttest		10.6397	1.968		
Computer Pretest	458	5.1703	1.639	-11.80	0.000
Computer Posttest		6.1965	1.570		

APPENDIX F

ATTITUDE TEST AND RESULTS

Nature-Computer Camp
Attitude Scale for Campers

Name _____ ID _____ School _____

Age _____ Date _____

Grade _____ Boy or Girl (circle one)

Direction: We would like to know your feelings about the natural environment, computers and living with others. Please read each statement and indicate with a checkmark ( ) whether you agree a lot, agree a little, are undecided, disagree a lot or disagree a little.

It is fun to:	1 Agree a lot	2 Agree a little	3 Undecided	4 Disagree a little	5 Disagree a lot
*41. learn at an outdoor school					
42. live and work with students from other schools					
43. make friends with students from other schools					
44. solve science problems					
45. learn about rocks and soils					
46. collect rocks and soils					
47. learn about animals that live in the forest					
48. learn about plants in the forest					
49. collect small animals from a stream					
50. learn about computers					
51. use computers					
52. be taught by different teachers					

*Responses should start at 41 on the General Purpose answer sheet.

Prepared by
Division of Quality Assurance

062184

ATTITUDE TEST RESULTS

N=458

	Pretest	Posttest
Cumulative Frequency of 81.9%	29.00	24.00
Mean (50%ile)	22.59	18.91
Standard Deviation	6.72	6.57
Range	36 (12-48)	44 (12-56)

A score of 12 would mean "agree a lot" was checked for all items.

A score of 60 would mean "disagree a lot" was checked for all items.

A score of 36 would mean items were scored to average the midpoint or "undecided".

APPENDIX G

COUNSELOR AND TEACHER CHECKLISTS AND RESULTS

Nature-Computer Camp

Counselor Checklist

We are interested in the social behaviors of the campers. Certain of these behaviors are listed below. Please indicate by checking on the scale provided whether the behaviors were observed all the time, most of the time, part of the time or never. If you don't know, please indicate. Also state in the space provided other social behaviors worth noting.

Thank you for your cooperation.

Counselor _____ Camper _____

Session _____ Date _____

	A	B	C	D	E
	All of the time	Most of the time	Part of the time	Never	Don't know
61.* Follows camp rules and regulations					
62. Keeps camp facilities and grounds clean					
63. Uses camp equipment with care					
64. Remains within the boundaries of the camp at all times					
65. Practices safety rules on trails and at the campsite					
66. Stays away from unsupervised areas					
67. Participates in camp activities					
68. Reports to camp activities on time					
69. Completes assignments on time					
70. Follows instructions of camp personnel					
71. Is not verbally abusive					
72. Is not physically abusive					
73. Is cooperative					
74. Maintains a good relationship with other campers					
75. Maintains a good relationship with teachers and counselors					
Other social behaviors (identify below and rate on the scale)					
76. _____					
77. _____					
78. _____					

* Items start at number 101 to correspond with numbers on the General Purpose answer sheet.

Prepared by
Division of Quality Assurance

062184

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Nature-Computer
Camp Teacher Checklist

Below is a list of competencies and skills that we expect of our campers upon completion of a session at the Nature-Computer camp. Please evaluate each camper as fairly as possible by checking whether he/she was able to master the skill or not. If the skill was not observed, please indicate this on the checklist.

Thank you for your cooperation.

Teacher_____ Session_____ Camper_____ Date_____

		A Mastered	B Not Mastered	C Not Observed
A. COMPUTER SKILLS	91. Set up computer for operation			
	92. Turn computer on and off			
	93. Identify components and functions			
	94. Distinguish between commands and statements			
	95. Locate points on graph paper			
	96. Plot points on CRT			
	97. Graph a rectangle			
	98. Write a program for plotting a rectangle			
	99. Construct a scrapbook on computer literacy			
B. WOODLAND ECOLOGY SKILLS	100. Name and identify at least three different trees found on the trail			
	101. Give examples of plant and animal interdependency			
	102. Name a producer and tell what it produces			
	103. Name three consumers in a woodland community			
	104. Describe the role of a decomposer			
C. STREAM ECOLOGY SKILLS	105. Measure the rate of flow, temperature and depth of a stream			
	106. Use collected stream specimens to help describe the kinds of organisms that populate a stream			
	107. Name and distinguish the various stages of metamorphosis			
	108. Describe at least one example of interdependence in a stream			
	109. Infer how factors such as temperature, velocity, pH and light can affect the numbers and kinds of organisms in a stream			
D. GEOLOGY SKILLS	110. Classify rocks as igneous, sedimentary or metamorphic			
	111. Name at least three characteristics of rocks and minerals			
	112. Describe three characteristics that make soils different			
	113. Identify and describe some evidence of weathering and erosion			
	114. Use a compass to locate different directions			
	115. Describe and infer evidence of the earth undergoing constant change			
	116. Other Skills:			

* Items start at number 61 to correspond with numbers on the General Purpose answer sheet.

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COUNSELOR CHECKLIST RESULTS

N=458

Mean	1.44
Standard Deviation	.60
Range	3.5 (0-3.5)

A score of 1 would mean "All of the time" was checked for all items.

A score of 4 would mean "Never" was checked for all items.

A score of 2.5 would be average.

On a scale of 100% equivalent to a score of 1 and 0% to a score of 4, the mean of 1.44 would be approximately equivalent to 85%.

TEACHER CHECKLIST RESULTS

N=458

Mean	23.73
Standard Deviation	2.33
Range	25.00 (0-25)

A score of 25 would mean all of the items were mastered.

A score of 0 would mean none of the items were mastered.

On a scale of 100% equivalent to a score of 25, the mean score to the group would be approximately equivalent to 95%.

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